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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,511	07/02/2003	Artie J. Goldberg	UCON/204/US	3528

2543 7590 04/19/2006

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HARTFORD, CT 06103

EXAMINER
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BUMGARNER, MELBA N

ART UNIT	PAPER NUMBER
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3732

DATE MAILED: 04/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/612,511

Applicant(s)

GOLDBERG ET AL.

Examiner

Melba Bumgarner

Art Unit

3732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 January 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 and 36-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 and 36-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5, 7-13, 19-23 and 36-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Marrocco, III et al. (6,087,467). Marrocco, III et al. disclose a thermoplastic rigid rod polymer of polyphenylenes with solubilizing side groups such as a polymer comprising arylene or heteroarylene moieties joined together by 1-4 covalent bonds between adjoining ring carbon atoms, wherein at least about 95% of the covalent bonds are substantially parallel to each other. It is noted that Marrocco, III et al. disclose the claimed structural limitations and the polymer of Marrocco, III et al. being identical to the polymer as claimed is inherently capable of use as claimed, i.e. an orthodontic component. The polymer is used in neat form or with reinforcing fibers and/or filler. The polymer has unreinforced tensile modulus of about 7 to 21 GPa. Marrocco, III et al. disclose a polymer appearing to be identical to the claimed invention; therefore the specific properties claimed would be inherently present in the polymer of Marrocco, III et al.

3. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Goldberg et al. (4,717,341). Goldberg et al. disclose an orthodontic component comprising a rigid backbone polymer include a solubilizing side group (example 12). The component comprises reinforcing fibers, filler, or non-rigid backbone polymer (column 5 line 15, column 7 line 15). The

Art Unit: 3732

component comprises a wire having a shape capable of providing a good fit in a bracket (column 4 line 16).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 6 and 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marrocco, III et al. in view of Goldberg. Marrocco, III et al. disclose the polymer that shows the limitations as described above; however, they do not show the polymer in the form of a wire. Goldberg et al. teach a rigid backbone polymer in the form of wire having cross sectional shaped selected from a circle or polygon or a bracket having a slot configured for wires. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the polymer of Marrocco, III et al. modified in the form of Goldberg et al. in order to have orthodontic appliances providing uniformity in force and more controlled tooth movement in view of Goldberg.

6. Claims 8-14, 16, 17, and 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldberg et al. Goldberg et al. disclose an orthodontic component that shows the limitations as described above and comprising a thermoplastic polymer; however, they do not disclose the polymer properties in its neat resin form. It would have been an obvious matter of choice to one of ordinary skill in the art as to the properties in the neat form as the component is not limited to being neat. The polymer would have elastic deformation at least as low as about

Art Unit: 3732

30. Goldberg et al. do not show the refractive index range of the component; however, it would have been an obvious matter of choice to one of ordinary skill in the art as to the refractive index in that Goldberg et al. teaches aesthetic components that are clear or tooth-colored. The component made of the polymer would have hardness of at least about 75 in Rockwell B scale. Goldberg et al. show final product having flexural modulus and flexural strength exceeding (almost double in some examples) of the claimed tensile modulus and tensile strength of the neat resin form; although the tensile modulus and tensile strength of Goldberg et al. may test to be lower than the flexural modulus and flexural strength, it is believed that the claimed limitations would be met, if they were of the final product. The reinforcing agent comprises 5 percent by weight of the component. The wire has cross sectional shaped selected from a circle or polygon. The component comprises a bracket having a slot configured for wires. The component comprises a matrix of polymeric materials. The reinforcing material may comprise the thermoplastic polymer.

7. Claims 15 and 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goldberg et al. in view of Wool (5,174,753). Goldberg et al. disclose an orthodontic component that shows the limitations as described above; however, they do not show the wire having cross section that is not circular and not quadrilateral. Wool teaches an orthodontic wire having such cross sections. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the wire of Goldberg et al. to have the cross section as in Wool in order to increase the flexibility and ease the insertion of the wire fitting into various slotted brackets. Goldberg et al. disclose an orthodontic component that shows the limitations as described above; however, they do not show the wire having different cross section at different

Art Unit: 3732

points along its length. Wool teaches an orthodontic wire comprising different cross section at different points along its length. It would have been obvious to one having ordinary skill in the art to modify the wire of Goldberg et al. to have the cross section as in Wool in order to have the wire when in use insure rearward translation and prevent tipping of the anterior brackets, and reduce friction and the tendency of the wire to bind with the posterior brackets in view of Wool.

### ***Response to Arguments***

8. Applicant's arguments filed January 17, 2006 have been fully considered but they are not persuasive. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the polymer or plastics having direct covalent bonding of one arylene group to another arylene group along the polymer back bone) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. The limitation of "rigid backbone polymer" is given its broadest meaning in that a polypropylene-based polymer or PMMA may be defined as having a rigid backbone in the art. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melba Bumgarner whose telephone number is 571-272-4709. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Shaver can be reached at 571-272-4720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3732

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in cursive script, reading "Melba Bumgarner".

Melba Bumgarner  
Primary Examiner